FIG.1A

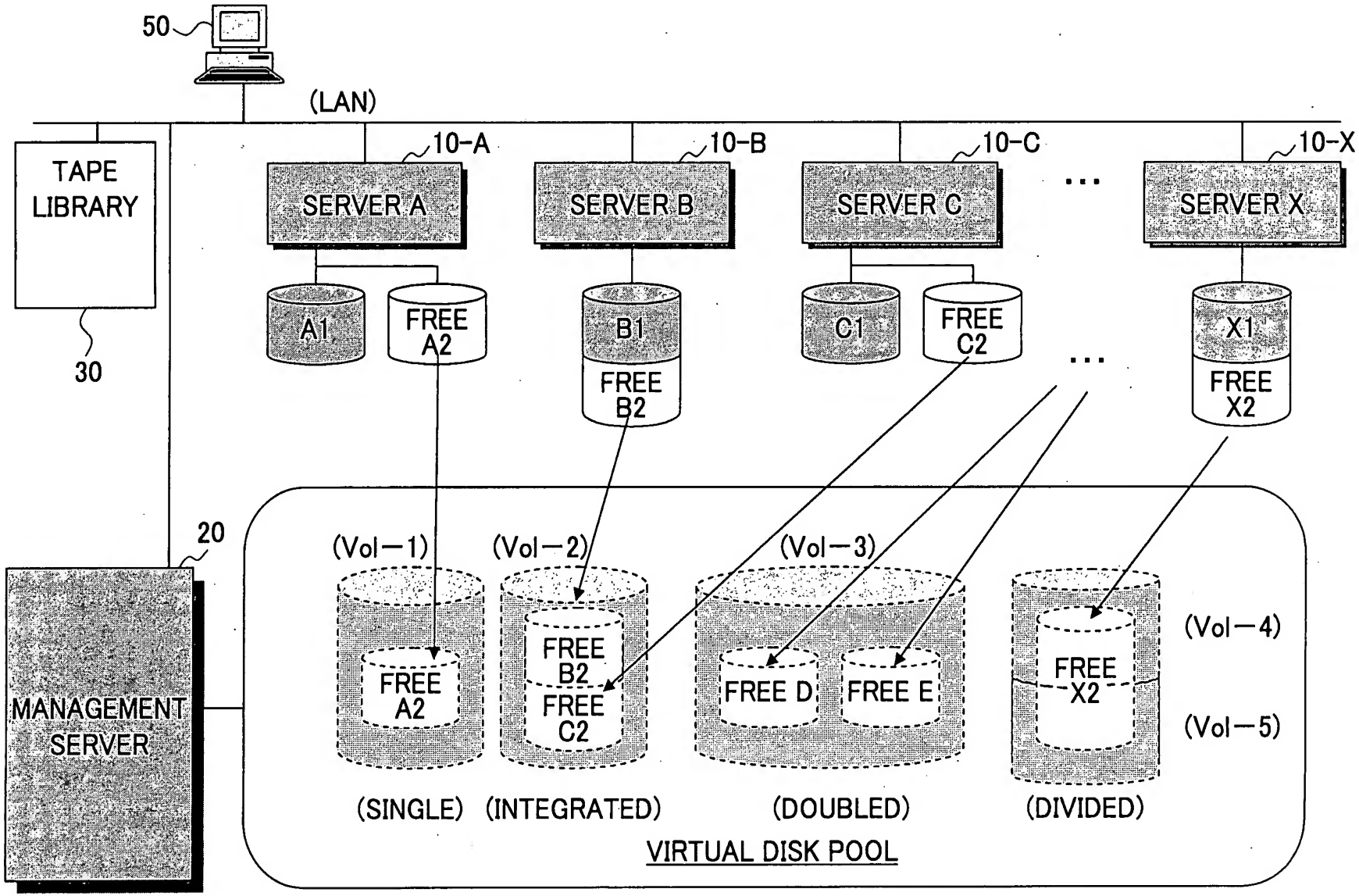
50
(LAN)
TAPE LIBRARY
30
10-A
10-B
10-C
10-X
SERVER A
SERVER B
SERVER C
SERVER X
A1
FREE A2
B1
FREE B2
C1
FREE C2
X1
FREE X2
20
MANAGEMENT SERVER
(Vol−1)
(Vol−2)
(Vol−3)
(Vol−4)
(Vol−5)
FREE A2
FREE B2
FREE C2
FREE D
FREE E
FREE X2
(SINGLE)
(INTEGRATED)
(DOUBLED)
(DIVIDED)
VIRTUAL DISK POOL

FIG.1B

DISK LENDING SOURCE SERVER	DISK BORROWING SERVER	PHYSICAL DISK INFORMATION (MOUNTING INFORMATION)		VIRTUAL DISK INFORMATION		STATUS INFORMATION
		FREE VOLUME NAME	SIZE	VOLUME NAME	USAGE WAY	
SERVER A		FREE A2	200 GB	Vol−1	SINGLE	1/0
SERVERB		FREEB2	200 GB	Vol−2	INTEGRATED	1/0
SERVERC		FREEC2	200 GB			
・・・(SERVER D)		FREE D	100 GB	Vol−3	DOUBLED	1/0
・・・(SERVER E)		FREE E	100 GB			
SERVER X		FREE X2	50 GB	Vol−4	DIVIDED	1/0
			50 GB	Vol−5		

FIG.2A

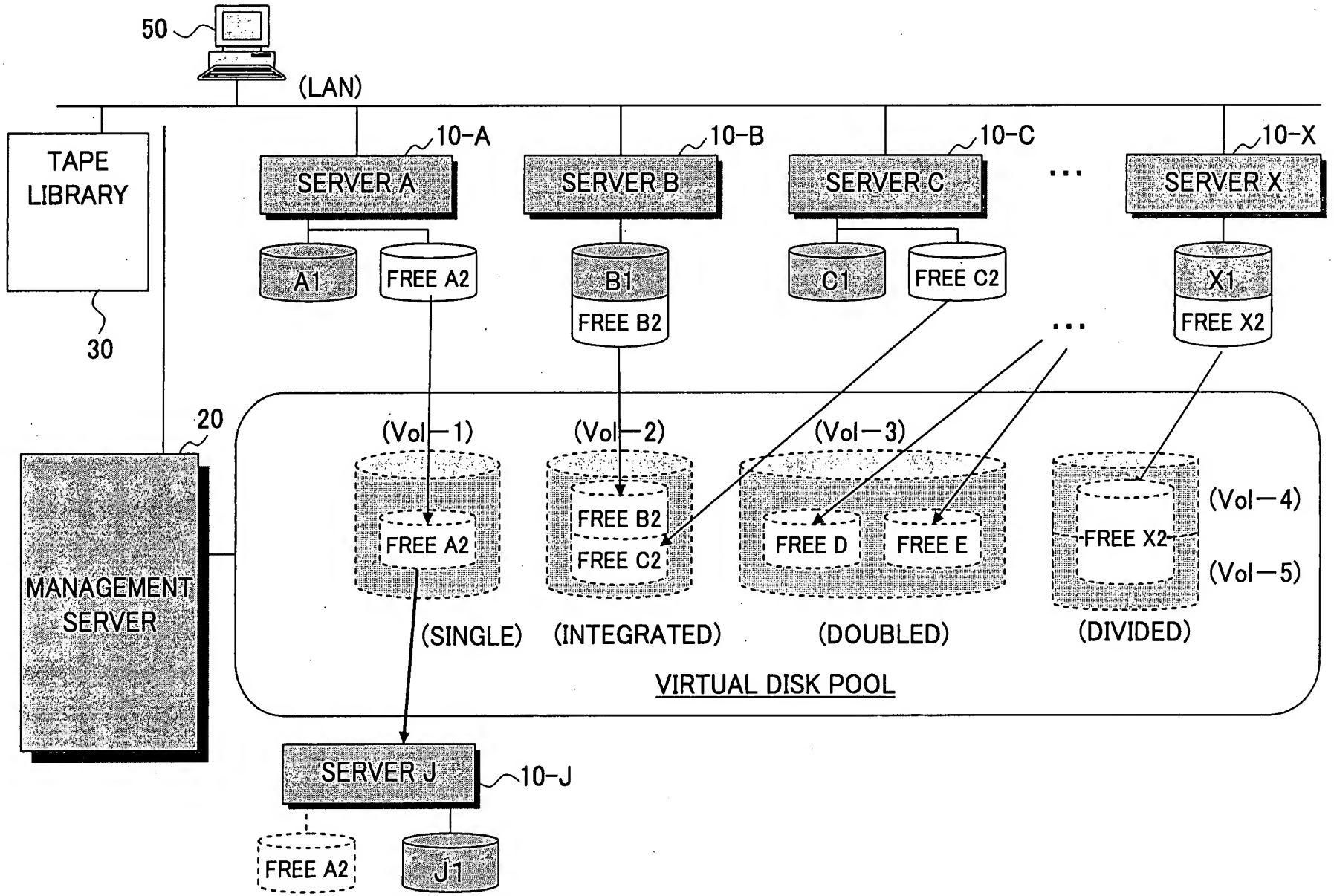
50
(LAN)
TAPE LIBRARY
30
10-A
SERVER A
10-B
SERVER B
10-C
SERVER C
...
10-X
SERVER X
A1
FREE A2
B1
FREE B2
C1
FREE C2
X1
FREE X2
20
MANAGEMENT SERVER
(Vol−1)
(Vol−2)
(Vol−3)
(Vol−4)
(Vol−5)
FREE A2
FREE B2
FREE C2
FREE D
FREE E
FREE X2
(SINGLE)
(INTEGRATED)
(DOUBLED)
(DIVIDED)
VIRTUAL DISK POOL
SERVER J
10-J
FREE A2
J1

FIG.2B

DISK LENDING SOURCE SERVER	DISK BORROWING SERVER	PHYSICAL DISK INFORMATION (MOUNTING INFORMATION)		VIRTUAL DISK INFORMATION		STATUS INFORMATION
		FREE VOLUME NAME	SIZE	VOLUME NAME	USAGE WAY	
SERVER A	SERVER J	FREE A2	200 GB	Vol−1	SINGLE	1/0
SERVERB		FREE B2	200 GB	Vol−2	INTEGRATED	1/0
SERVERC		FREE C2	200 GB			
・・・(SERVER D)		FREE D	100 GB	Vol−3	DOUBLED	1/0
・・・(SERVER E)		FREE E	100 GB			
SERVER X		FREE X2	50 GB	Vol−4	DIVIDED	1/0
			50 GB	Vol−5		

FIG.3

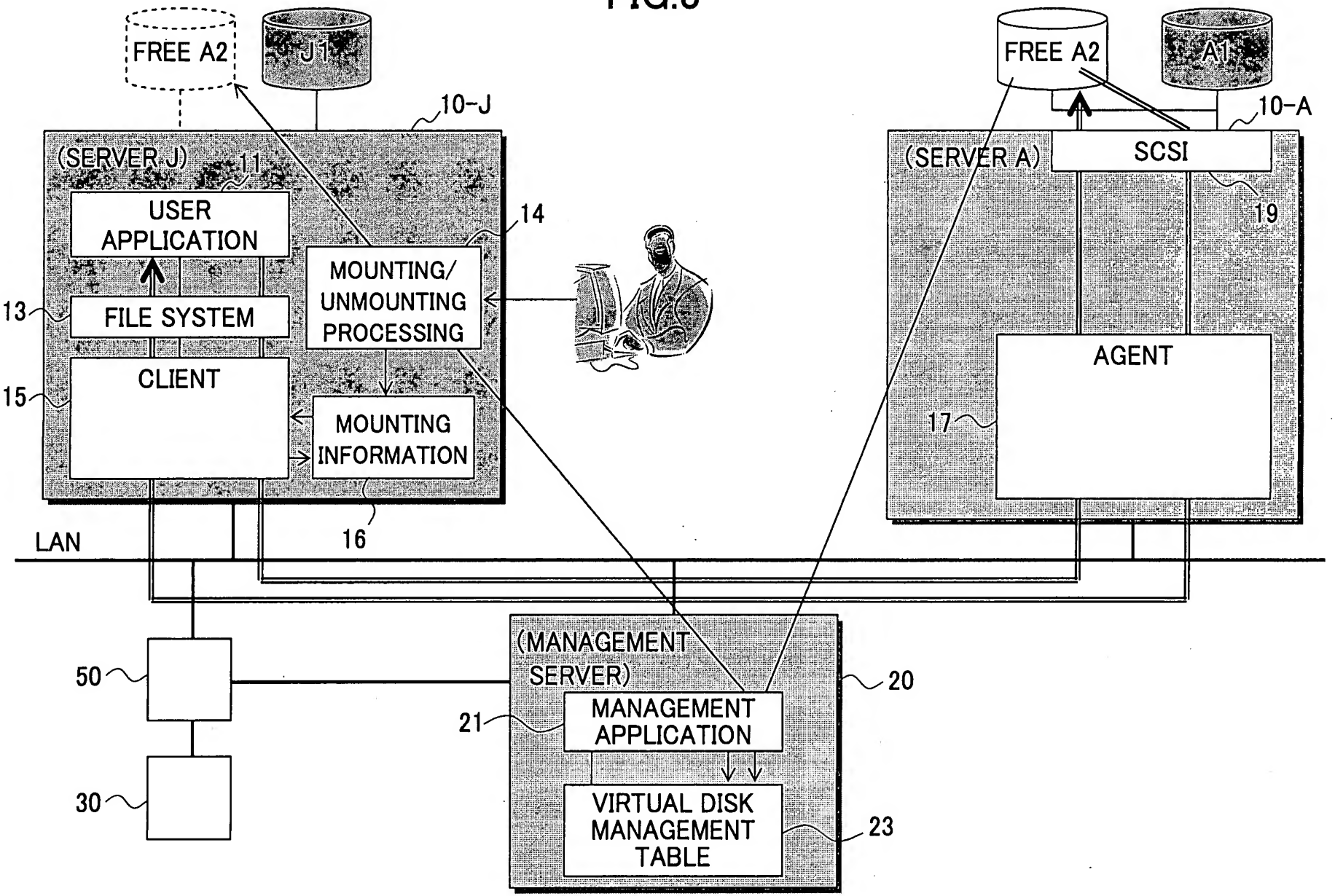
FREE A2
J1
10-J
(SERVER J)
11
USER APPLICATION
14
MOUNTING/ UNMOUNTING PROCESSING
13
FILE SYSTEM
15
CLIENT
MOUNTING INFORMATION
16
FREE A2
A1
10-A
(SERVER A)
SCSI
19
AGENT
17
LAN
50
30
(MANAGEMENT SERVER)
20
21
MANAGEMENT APPLICATION
VIRTUAL DISK MANAGEMENT TABLE
23

FIG.4

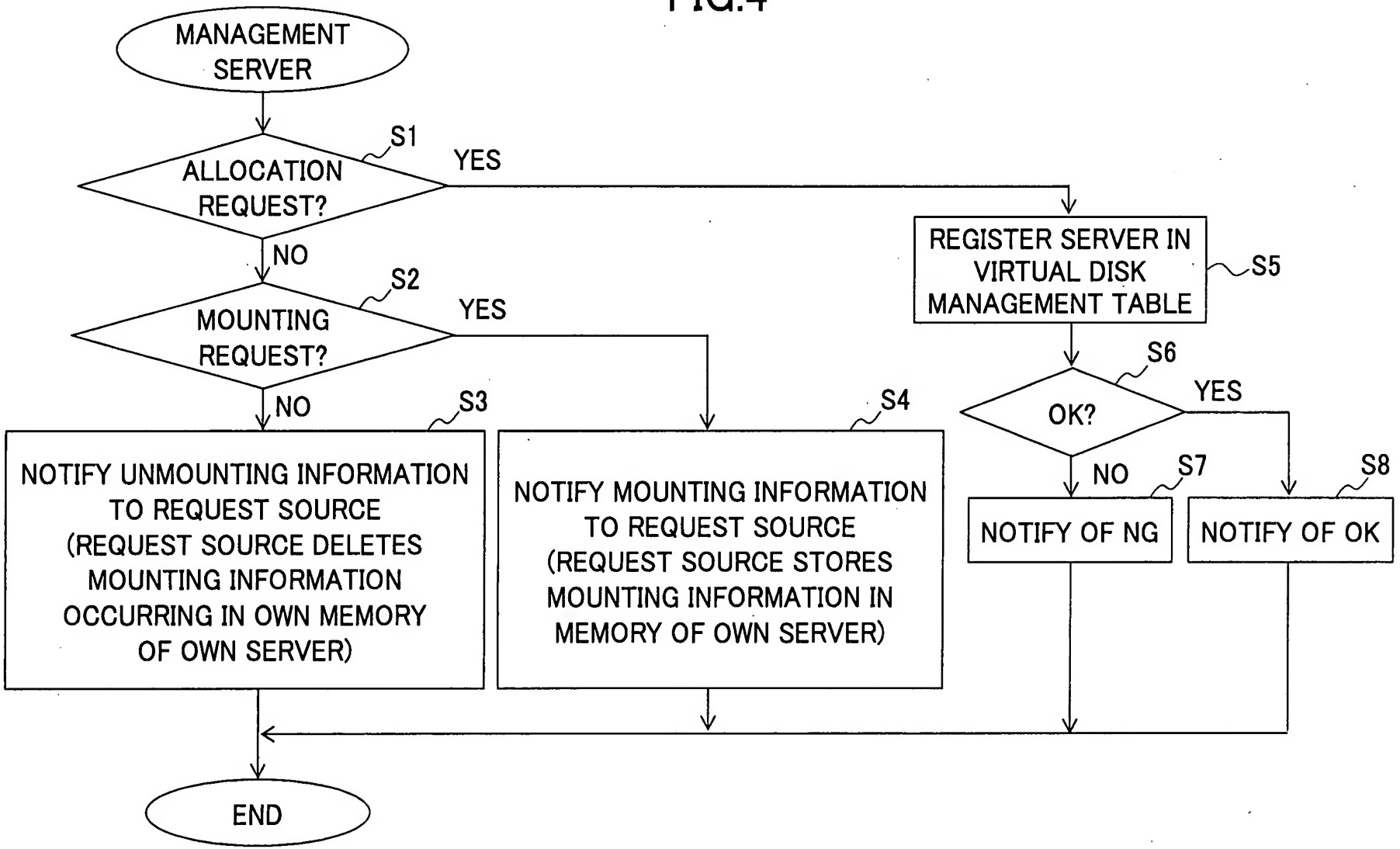
MANAGEMENT SERVER
S1
ALLOCATION REQUEST?
YES
NO
S2
MOUNTING REQUEST?
YES
NO
S3
NOTIFY UNMOUNTING INFORMATION TO REQUEST SOURCE (REQUEST SOURCE DELETES MOUNTING INFORMATION OCCURRING IN OWN MEMORY OF OWN SERVER)
S4
NOTIFY MOUNTING INFORMATION TO REQUEST SOURCE (REQUEST SOURCE STORES MOUNTING INFORMATION IN MEMORY OF OWN SERVER)
REGISTER SERVER IN VIRTUAL DISK MANAGEMENT TABLE
S5
S6
OK?
YES
NO
S7
NOTIFY OF NG
S8
NOTIFY OF OK
END

FIG.5A

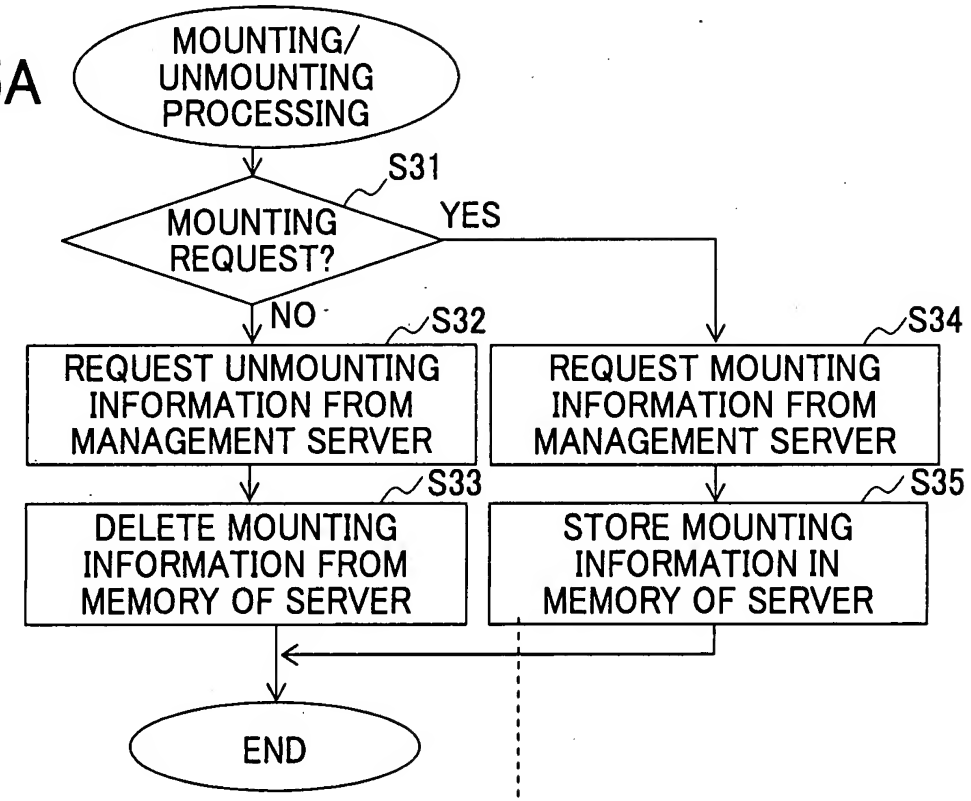

FIG.5B

DISK LENDING SOURCE SERVER	DISK BORROWING SERVER	PHYSICAL DISK INFORMATION (MOUNTING INFORMATION)		VIRTUAL DISK INFORMATION		STATUS INFORMATION
		FREE VOLUME NAME	SIZE	VOLUME NAME	USAGE WAY	
SERVER A	SERVER J	FREE A2	200 GB	Vol−1	SINGLE	1/0

FIG.6A

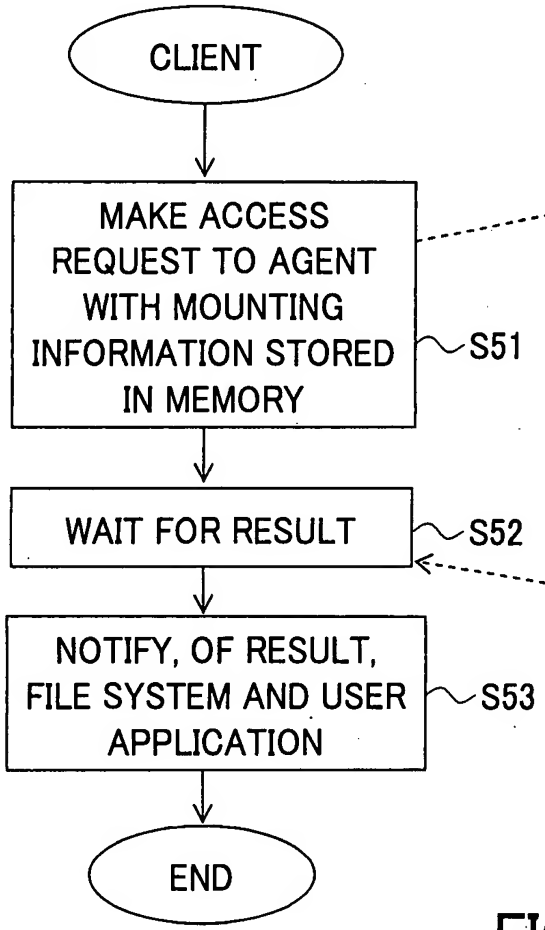

FIG.6C

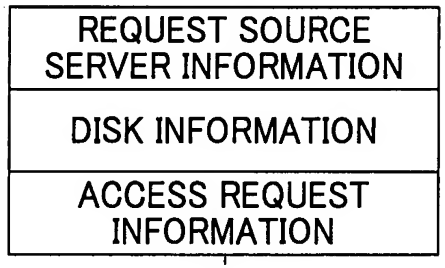

FIG.6B

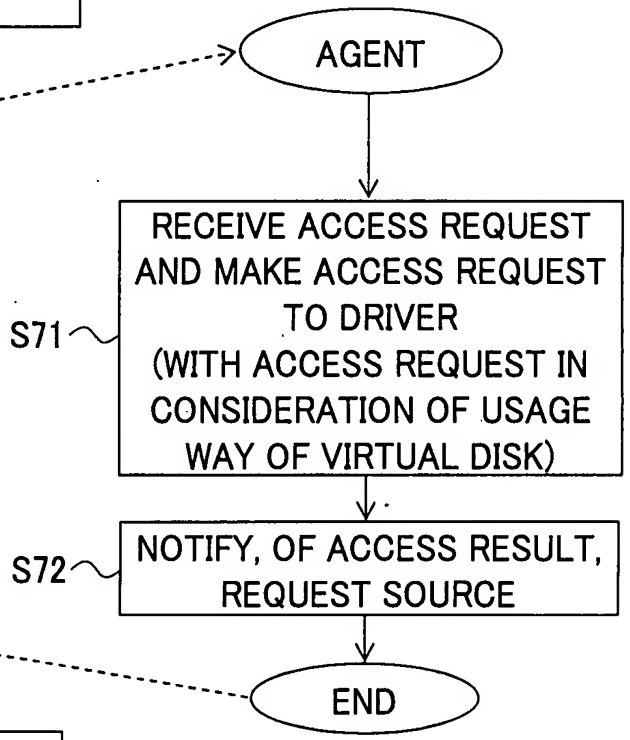
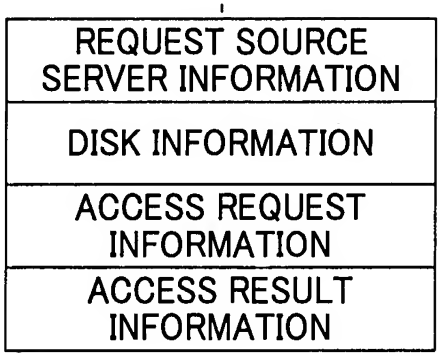
FIG.6D